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Foreign Exchange Analysis  
Addendum 2: Potential Netting

**MERCER**

# Contents

- 1. Methodology..... 2
- 2. Netting calculation ..... 3
  - Example 2 - Complex matched set for netting ..... 4
  - Example 2A – Netting solution A ..... 4
  - Example 2B – Netting solution B ..... 4
- 3. Exhibits ..... 5
  - Table A1a Potential netting opportunities across accounts ..... 5
  - Table A1b Potential netting opportunities across accounts ..... 5
  - Table A2a Potential netting opportunities within accounts ..... 7
  - Table A2b Potential netting opportunities within account ..... 7
  - Table A3 Potential netting opportunities within account by manager..... 8

## Methodology

To check for potential netting opportunities, Mercer Sentinel checked the data for executions that matched on the following criteria:

- Contract type
- Currency pair
- Trade date
- Settlement date
- Opposing direction
- Account name (Table A2, for the “within accounts” analysis, only)

All transactions that matched on the first four criteria and also satisfied the fifth condition, opposing direction, were given a unique transaction code to indicate they formed a set of transactions with a potential for netting. We dubbed these groups of transactions ***matched sets***.

We then separated the matched sets into four categories:

| Matched set category   | Across accounts | Within accounts |
|--|-----------------|-----------------|
| 1) Sets where at least one currency was a restricted currency. | 773             | 471             |
| 2) Sets where the buy transactions had smaller volume.         | 1,238           | 898             |
| 3) Sets where the sell transactions had smaller volume.        | 1,449           | 1,009           |
| 4) Sets where the buys and sells were exactly equal.           | 2               | 3               |

Matched sets containing restricted currencies (Set 1) were excluded from further calculation, based on the notion that the foreign exchange agent may not have discrete control over restricted currency activity. Matched sets where buys and sells had equal volume (Set 4) were extremely rare. One hypothesis is that they are associated with trade corrections. Excluding these two subsets left us with the transactions where netting might occur, Sets 2 and 3.

## Netting calculation

While figuring the effect of possible netting, Mercer Sentinel sought to calculate the most conservative estimate of potential benefit. To illustrate, we will use the examples shown below.

Example 1 - Simple matched set for netting

| Pair                  | Volume           | Bps of cost  | Cost         |
|-----------------------|------------------|--------------|--------------|
| EURUSD Sell           | (1,000,000)      | (3.0)        | (300)        |
| EURUSD Buy            | 500,000          | (2.0)        | (100)        |
| <b>Combined total</b> | <b>(500,000)</b> | <b>(8.0)</b> | <b>(400)</b> |

Example 1 - Netted set result

| Pair                | Volume           | Bps of cost    | Cost         |
|---------------------|------------------|----------------|--------------|
| EURUSD Sell         | (500,000)        | (3.0)          | (150)        |
| EURUSD Buy          |                  | (2.0)          |              |
| <b>Netted total</b> | <b>(500,000)</b> | <b>(3.0)</b>   | <b>(150)</b> |
|                     |                  | <b>Savings</b> | <b>250</b>   |

## Example 2 - Complex matched set for netting

| Pair                  | Volume           | Bps of cost  | Cost         |
|-----------------------|------------------|--------------|--------------|
| EURUSD Sale           | (1,000,000)      | (3.0)        | (300)        |
| EURUSD Sale           | (400,000)        | (5.0)        | (200)        |
| EURUSD Buy            | 500,000          | (2.0)        | (100)        |
| <b>Combined total</b> | <b>(900,000)</b> | <b>(6.7)</b> | <b>(600)</b> |

## Example 2A - Netting solution A

| Pair                  | Volume           | Bps of cost    | Cost         |
|-----------------------|------------------|----------------|--------------|
| EURUSD Sale           | (900,000)        | (3.0)          | (270)        |
| EURUSD Sale           |                  | (5.0)          |              |
| EURUSD Buy            |                  | (2.0)          |              |
| <b>Combined total</b> | <b>(900,000)</b> | <b>(3.0)</b>   | <b>(270)</b> |
|                       |                  | <b>Savings</b> | <b>330</b>   |

## Example 2B - Netting solution B

| Pair                  | Volume           | Bps of cost    | Cost         |
|-----------------------|------------------|----------------|--------------|
| EURUSD Sale           | (500,000)        | (3.0)          | (150)        |
| EURUSD Sale           | (400,000)        | (5.0)          | (200)        |
| EURUSD Buy            |                  | (2.0)          |              |
| <b>Combined total</b> | <b>(900,000)</b> | <b>(3.9)</b>   | <b>(350)</b> |
|                       |                  | <b>Savings</b> | <b>250</b>   |

By applying the net against the less expensive opposing trade, Solution A reports a potential netting benefit that is 32% larger than Solution B. Mercer Sentinel pursued the more conservative approach for estimating the potential netting benefit.

## Exhibits

Table A1a Potential netting opportunities across accounts

| Measure                           | Totals    |
|-----------------------------------|-----------|
| Number of trades                  | 17,509    |
| Number of matched sets            | 3,462     |
| Value of potential netting (\$)   | 4,436,001 |
| Value of potential netting (bps)* | 0.9       |

\*Basis point calculation is relative to market value of spot trades, \$50,377,951,728.

Table A1b Potential netting opportunities across accounts<sup>1</sup>

| Contract | Type           | Pair    | Year |      |      |      |       |      |
|----------|----------------|---------|------|------|------|------|-------|------|
|          |                |         | 2005 | 2006 | 2007 | 2008 | 2009  | 2010 |
| I        | non-restricted | AEDUSD  | -    | -    | -    | -    | -     | 2    |
|          |                | JODUSD  | -    | -    | -    | 9    | -     | -    |
|          |                | NGNUSD  | -    | -    | -    | -    | 7     | 12   |
|          |                | PKRUSD  | -    | -    | -    | -    | -     | 2    |
|          | Restricted     | EGPUSD  | -    | 2    | -    | 10   | 21    | -    |
|          |                | IDRUSD  | -    | 2    | 25   | -    | -     | -    |
|          |                | KRWUSD  | 11   | 26   | 300  | 219  | -     | -    |
|          |                | MYRUSD  | 2    | 3    | 7    | -    | -     | -    |
|          |                | THBUSD  | -    | -    | 21   | -    | -     | -    |
|          |                | TWDUSD  | -    | 3    | 2    | -    | -     | -    |
| N        | non-restricted | USDEUR  | -    | -    | -    | 2    | -     | -    |
|          |                | USDGBP  | -    | -    | -    | 2    | -     | -    |
| T        | non-restricted | AUDUSD  | -    | 2    | 7    | 37   | 174   | 26   |
|          |                | CADUSD  | -    | -    | 4    | 373  | 1,792 | 16   |
|          |                | CHF EUR | -    | 2    | -    | -    | -     | -    |
|          |                | CHF USD | -    | 3    | 48   | 108  | 197   | 47   |
|          |                | DKK USD | -    | -    | 2    | 14   | 8     | -    |
|          |                | HKD USD | -    | 6    | 28   | 101  | 391   | 195  |
|          |                | ILS USD | -    | -    | 8    | 5    | 13    | -    |
|          |                | JPY USD | 11   | 25   | 207  | 439  | 734   | 132  |
|          |                | NOK USD | -    | -    | 2    | 19   | 35    | 6    |
|          |                | RON USD | -    | -    | -    | -    | -     | 2    |
|          |                | SEK USD | -    | 10   | 2    | 16   | 71    | 4    |
|          |                | SGD USD | 8    | -    | 9    | 18   | 60    | 11   |

<sup>1</sup> Excludes two sets (four trades) labeled "equal"

| Contract             | Type       | Pair   | Year |      |       |       |       |       |
|----------------------|------------|--------|------|------|-------|-------|-------|-------|
|                      |            |        | 2005 | 2006 | 2007  | 2008  | 2009  | 2010  |
|                      |            | USDEUR | 8    | 188  | 751   | 1,881 | 2,675 | 418   |
|                      |            | USDGBP | 6    | 32   | 146   | 777   | 1,542 | 282   |
|                      |            | ZARUSD | 3    | -    | -     | 6     | -     | -     |
|                      | restricted | BRLUSD | 30   | 154  | 147   | 348   | 544   | 66    |
|                      |            | EGPUSD | -    | -    | -     | -     | -     | 5     |
|                      |            | IDRUSD | -    | -    | -     | 33    | 30    | 10    |
|                      |            | INRUSD | -    | -    | -     | 25    | 22    | 23    |
|                      |            | KRWUSD | -    | -    | -     | 215   | 524   | 147   |
|                      |            | MYRUSD | -    | 2    | -     | 53    | 52    | 22    |
|                      |            | PHPUSD | -    | -    | -     | -     | 16    | 13    |
|                      |            | THBUSD | 2    | -    | 12    | 58    | 51    | 11    |
|                      |            | TWDEUR | -    | -    | -     | -     | 2     | -     |
|                      |            | TWDUSD | -    | -    | 9     | 30    | 12    | 4     |
| Total non-restricted |            |        | 36   | 268  | 1,214 | 3,807 | 7,699 | 1,155 |
| Total restricted     |            |        | 45   | 192  | 523   | 991   | 1,274 | 301   |
| Total                |            |        | 81   | 460  | 1,737 | 4,798 | 8,973 | 1,456 |

Table A2a Potential netting opportunities within accounts

| Measure                           | Totals    |
|-----------------------------------|-----------|
| Number of trades                  | 9,446     |
| Number of matched sets            | 2,381     |
| Value of potential netting (\$)   | 3,373,709 |
| Value of potential netting (bps)* | 0.7       |

\*Basis point calculation is relative to market value of spot trades, \$50,377,951,728.

As may be expected, the number of trades in matched sets within accounts was much smaller than across all accounts because of the reduced opportunity set for matches.

Table A2b Potential netting opportunities within account<sup>2</sup>

| Contract | Type           | Pair    | Year |      |      |      |       |      |
|----------|----------------|---------|------|------|------|------|-------|------|
|          |                |         | 2005 | 2006 | 2007 | 2008 | 2009  | 2010 |
| I        | non-restricted | AEDUSD  | -    | -    | -    | -    | -     | 2    |
|          |                | JODUSD  | -    | -    | -    | 9    | -     | -    |
|          |                | NGNUSD  | -    | -    | -    | -    | 5     | 8    |
|          |                | PKRUSD  | -    | -    | -    | -    | -     | 2    |
|          | restricted     | EGPUSD  | -    | -    | -    | 5    | 4     | -    |
|          |                | IDRUSD  | -    | -    | 2    | -    | -     | -    |
|          |                | KRWUSD  | 2    | -    | 172  | 104  | -     | -    |
|          |                | MYRUSD  | 2    | -    | 7    | -    | -     | -    |
|          |                | THBUSD  | -    | -    | 9    | -    | -     | -    |
|          |                |         |      |      |      |      |       |      |
| T        | non-restricted | AUDUSD  | -    | 2    | 4    | 21   | 83    | 21   |
|          |                | CADUSD  | -    | -    | -    | 237  | 1,567 | 3    |
|          |                | CHF EUR | -    | 2    | -    | -    | -     | -    |
|          |                | CHF USD | -    | -    | 24   | 39   | 69    | 5    |
|          |                | DKK USD | -    | -    | 2    | 9    | -     | -    |
|          |                | HKD USD | -    | 5    | 2    | 33   | 188   | 78   |
|          |                | ILS USD | -    | -    | 8    | 5    | 8     | -    |
|          |                | JPY USD | 11   | 16   | 154  | 186  | 420   | 78   |
|          |                | NOK USD | -    | -    | -    | 6    | 5     | -    |
|          |                | RON USD | -    | -    | -    | -    | -     | 2    |
|          |                | SEK USD | -    | 4    | -    | 6    | 37    | -    |
|          |                | SGD USD | 8    | -    | 5    | 6    | 40    | 2    |
|          |                | USDEUR  | 5    | 12   | 249  | 663  | 1,485 | 183  |

<sup>2</sup> Excludes three sets (six trades) labeled "equal"



| Contract             | Type       | Pair   | Year |      |      |       |       |      |
|----------------------|------------|--------|------|------|------|-------|-------|------|
|                      |            |        | 2005 | 2006 | 2007 | 2008  | 2009  | 2010 |
|                      |            | USDGBP | 4    | 24   | 77   | 430   | 985   | 136  |
|                      |            | ZARUSD | -    | -    | -    | 6     | -     | -    |
|                      | restricted | BRLUSD | 22   | 96   | 69   | 108   | 300   | 36   |
|                      |            | EGPUSD | -    | -    | -    | -     | -     | 3    |
|                      |            | IDRUSD | -    | -    | -    | 14    | 19    | 6    |
|                      |            | INRUSD | -    | -    | -    | 8     | 8     | 2    |
|                      |            | KRWUSD | -    | -    | -    | 134   | 335   | 110  |
|                      |            | MYRUSD | -    | 2    | -    | 16    | 41    | 17   |
|                      |            | PHPUSD | -    | -    | -    | -     | 13    | 11   |
|                      |            | THBUSD | 2    | -    | 7    | 30    | 22    | 7    |
|                      |            | TWDUSD | -    | -    | 2    | 5     | 2     | -    |
| Total non-restricted |            |        | 28   | 65   | 525  | 1,656 | 4,892 | 520  |
| Total restricted     |            |        | 28   | 98   | 268  | 424   | 744   | 192  |
| Total                |            |        | 56   | 163  | 793  | 2,080 | 5,636 | 712  |

Table A3 Potential netting opportunities within account by manager

| Account              | Measure*                                  | Year   |        |      |      |      |      |
|----------------------|---|--------|--------|------|------|------|------|
|                      |   | 2005   | 2006   | 2007 | 2008 | 2009 | 2010 |
| Fisher Inv<br>Global | Number of<br>Trades                       | 3      | 19     |      |      |      |      |
|                      | Number of<br>Sets                         | 1      | 6      |      |      |      |      |
|                      | Value of<br>potential<br>netting (\$)     | 10,681 | 96,164 |      |      |      |      |
|                      | Value of<br>potential<br>netting<br>(bps) | 0.0    | 0.0    |      |      |      |      |
| Templeton<br>Global  | Number of<br>Trades                       |        |        | 2    |      |      | 2    |
|                      | Number of<br>Sets                         |        |        | 1    |      |      | 1    |
|                      | Value of<br>potential<br>netting (\$)     |        |        | 0    |      |      | 4    |
|                      | Value of<br>potential<br>netting<br>(bps) |        |        | 0.0  |      |      | 0.0  |

| Account              | Measure*                         | Year  |         |         |          |           |         |
|----------------------|----------------------------------|-------|---------|---------|----------|-----------|---------|
|                      |                                  | 2005  | 2006    | 2007    | 2008     | 2009      | 2010    |
| Artisan Partners     | Number of Trades                 | 5     |         |         |          |           |         |
|                      | Number of Sets                   | 1     |         |         |          |           |         |
|                      | Value of potential netting (\$)  | 44    |         |         |          |           |         |
|                      | Value of potential netting (bps) | 0.0   |         |         |          |           |         |
| Pyramis              | Number of Trades                 |       | 11      | 11      | 191      | 2,130     |         |
|                      | Number of Sets                   |       | 4       | 3       | 25       | 309       |         |
|                      | Value of potential netting (\$)  |       | 1,761   | 83      | 123,412  | 1,871,718 |         |
|                      | Value of potential netting (bps) |       | 0.0     | 0.0     | 0.0      | 0.4       |         |
| Templeton Investment | Number of Trades                 |       |         | 2       |          |           | 2       |
|                      | Number of Sets                   |       |         | 1       |          |           | 1       |
|                      | Value of potential netting (\$)  |       |         | 1       |          |           | 5       |
|                      | Value of potential netting (bps) |       |         | 0.0     |          |           | 0.0     |
| Sprucegrove          | Number of Trades                 | 20    | 31      | 72      | 98       | 29        | 15      |
|                      | Number of Sets                   | 10    | 10      | 27      | 38       | 13        | 7       |
|                      | Value of potential netting (\$)  | 2,530 | (1,065) | (6,223) | (13,642) | (3,656)   | (2,550) |
|                      | Value of potential netting (bps) | 0.0   | (0.0)   | (0.0)   | (0.0)    | (0.0)     | (0.0)   |

| Account           | Measure*                         | Year |      |      |       |       |      |
|-------------------|----------------------------------|------|------|------|-------|-------|------|
|                   |                                  | 2005 | 2006 | 2007 | 2008  | 2009  | 2010 |
| Capital Guardian  | Number of Trades                 |      | 4    | 4    | 3     | 4     |      |
|                   | Number of Sets                   |      | 2    | 2    | 1     | 2     |      |
|                   | Value of potential netting (\$)  |      | 7    | 0    | 0     | 2     |      |
|                   | Value of potential netting (bps) |      | 0.0  | 0.0  | 0.0   | 0.0   |      |
| Mondrian Emerging | Number of Trades                 |      |      |      | 3     |       |      |
|                   | Number of Sets                   |      |      |      | 1     |       |      |
|                   | Value of potential netting (\$)  |      |      |      | (1)   |       |      |
|                   | Value of potential netting (bps) |      |      |      | (0.0) |       |      |
| Acadian Emerging  | Number of Trades                 |      |      | 8    | 14    | 8     |      |
|                   | Number of Sets                   |      |      | 3    | 3     | 3     |      |
|                   | Value of potential netting (\$)  |      |      | 73   | 4,069 | 2,296 |      |
|                   | Value of potential netting (bps) |      |      | 0.0  | 0.0   | 0.0   |      |
| Trilogy Emerging  | Number of Trades                 |      |      |      | 3     |       |      |
|                   | Number of Sets                   |      |      |      | 1     |       |      |
|                   | Value of potential netting (\$)  |      |      |      | (0)   |       |      |
|                   | Value of potential netting (bps) |      |      |      | (0.0) |       |      |

| Account                            | Measure*                                  | Year |      |        |        |         |        |
|------------------------------------|---|------|------|--------|--------|---------|--------|
|                                    |   | 2005 | 2006 | 2007   | 2008   | 2009    | 2010   |
| Halbis<br>Frontier<br>Markets      | Number of<br>Trades                       |      |      |        |        | 5       | 12     |
|                                    | Number of<br>Sets                         |      |      |        |        | 2       | 5      |
|                                    | Value of<br>potential<br>netting (\$)     |      |      |        |        | 73      | 4,367  |
|                                    | Value of<br>potential<br>netting<br>(bps) |      |      |        |        | 0.0     | 0.0    |
| First State<br>Frontier<br>Markets | Number of<br>Trades                       |      |      |        |        |         | 2      |
|                                    | Number of<br>Sets                         |      |      |        |        |         | 1      |
|                                    | Value of<br>potential<br>netting (\$)     |      |      |        |        |         | 193    |
|                                    | Value of<br>potential<br>netting<br>(bps) |      |      |        |        |         | 0.0    |
| William Blair                      | Number of<br>Trades                       |      |      | 173    | 312    | 648     | 137    |
|                                    | Number of<br>Sets                         |      |      | 59     | 116    | 172     | 46     |
|                                    | Value of<br>potential<br>netting (\$)     |      |      | 16,229 | 39,888 | 186,299 | 26,630 |
|                                    | Value of<br>potential<br>netting<br>(bps) |      |      | 0.0    | 0.0    | 0.0     | 0.0    |

| Account              | Measure*                         | Year |      |        |         |         |        |
|----------------------|----------------------------------|------|------|--------|---------|---------|--------|
|                      |                                  | 2005 | 2006 | 2007   | 2008    | 2009    | 2010   |
| Pinebridge Small Cap | Number of Trades                 |      |      | 155    | 615     | 1,147   | 202    |
|                      | Number of Sets                   |      |      | 42     | 152     | 263     | 65     |
|                      | Value of potential netting (\$)  |      |      | 25,207 | 118,471 | 214,980 | 34,737 |
|                      | Value of potential netting (bps) |      |      | 0.0    | 0.0     | 0.0     | 0.0    |
| Epoch Small Cap      | Number of Trades                 |      |      | 74     | 144     | 2       |        |
|                      | Number of Sets                   |      |      | 20     | 52      | 1       |        |
|                      | Value of potential netting (\$)  |      |      | 16,258 | 32,247  | 2,940   |        |
|                      | Value of potential netting (bps) |      |      | 0.0    | 0.0     | 0.0     |        |
| Principal Small Cap  | Number of Trades                 |      |      |        | 4       | 11      |        |
|                      | Number of Sets                   |      |      |        | 2       | 4       |        |
|                      | Value of potential netting (\$)  |      |      |        | 30      | 36      |        |
|                      | Value of potential netting (bps) |      |      |        | 0.0     | 0.0     |        |
| Pyramis Small Cap    | Number of Trades                 |      |      |        | 8       | 2       |        |
|                      | Number of Sets                   |      |      |        | 4       | 1       |        |
|                      | Value of potential netting (\$)  |      |      |        | 110     | 0       |        |
|                      | Value of potential netting (bps) |      |      |        | 0.0     | 0.0     |        |

| Account                                       | Measure*                         | Year          |               |               |                |                  |               |
|---|----------------------------------|---------------|---------------|---------------|----------------|------------------|---------------|
|   |                                  | 2005          | 2006          | 2007          | 2008           | 2009             | 2010          |
| Victory Small Cap                             | Number of Trades                 |               |               | 24            | 261            | 906              | 148           |
|   | Number of Sets                   |               |               | 6             | 90             | 275              | 53            |
|   | Value of potential netting (\$)  |               |               | 41,558        | 153,495        | 341,696          | 32,553        |
|   | Value of potential netting (bps) |               |               | 0.0           | 0.0            | 0.1              | 0.0           |
| <b>Total number of Trades</b>                 |                                  | <b>28</b>     | <b>65</b>     | <b>525</b>    | <b>1,656</b>   | <b>4,892</b>     | <b>520</b>    |
| <b>Total number of Sets</b>                   |                                  | <b>12</b>     | <b>22</b>     | <b>164</b>    | <b>485</b>     | <b>1,045</b>     | <b>179</b>    |
| <b>Total value of potential netting (\$)</b>  |                                  | <b>13,255</b> | <b>96,867</b> | <b>93,186</b> | <b>458,079</b> | <b>2,616,383</b> | <b>95,938</b> |
| <b>Total value of potential netting (bps)</b> |                                  | <b>0.0</b>    | <b>0.0</b>    | <b>0.0</b>    | <b>0.1</b>     | <b>0.5</b>       | <b>0.0</b>    |

\*Basis point calculation is relative to market value of spot trades, \$50,377,951,728.

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